

AMENDMENTS TO THE CLAIMS

Claim 1 (Previously Presented) A unit-to-unit data exchange system for exchanging data between units connected to each other via a communication medium, the unit-to-unit data exchange system comprising:

a first unit including a first memory and a first processor connected to the first memory, the first unit for storing first content data of interest that can be exchanged and for encrypting the first content data of interest when the first content data of interest is exchanged;

a second unit including a second memory and a second processor connected to the second memory, the second unit for storing second content data of interest to the first unit and for encrypting the second content data of interest when the second content data of interest is exchanged to the first unit; and

an exchange completion data keeping device including a third memory and a third processor connected to the third memory, the exchange completion data keeping device being (i) connected to the first unit and the second unit via the communication medium (ii) for storing first exchange completion data that is a first decryption key, and that is necessary for reproducing encrypted second content data of interest to the first unit that is obtained by the first unit from the second unit, and (iii) for storing second exchange completion data that is a second decryption key, and that is necessary for reproducing encrypted first content data of interest to the second unit that is obtained by the second unit from the first unit,

wherein the first processor is programmed to cause the first unit to operate as:

a first exchange completion data production requesting unit for requesting the exchange completion data keeping device to produce the second exchange completion data;

a first data conversion unit for converting the first content data owned by the first unit, by using a second conversion process data transmitted from the exchange completion data keeping device, to encrypted first content data that can be reproduced successfully only by using the second exchange completion data; and

a first data recovery unit for recovering the second content data that can be reproduced successfully, from the encrypted second content data received from the second unit, by using the first exchange completion data,

wherein the second processor is programmed to cause the second unit to operate as:

a second exchange completion data production requesting unit for requesting the exchange completion data keeping device to produce the first exchange completion data;

a second data conversion unit for converting the second content data owned by the second unit, by using a first conversion process data transmitted from the exchange completion data keeping device, to encrypted second content data that can be reproduced successfully only by using the first exchange completion data; and

a second data recovery unit for recovering the first content data that can be reproduced successfully, from the encrypted first content data received from the first unit, by using the second exchange completion data,

wherein the third processor is programmed to cause the exchange completion data keeping device to receive a first communication result from the first unit when a first communication session between the first unit and the second unit is terminated, and to receive a second communication result from the second unit when a second communication session between the first unit and the second unit is terminated, and

wherein the third processor is programmed to cause the exchange completion data keeping device to operate as:

a determination unit for determining whether the first unit has successfully received from the second unit the encrypted second content data of interest to the first unit based on the first communication result, and determining whether the second unit has successfully received from the first unit the encrypted first content data of interest to the second unit based on the second communication result;

a conversion process data production/transmission unit for (i) producing the first and second conversion process data respectively used for converting the second and first content data to the encrypted second and first content data that can be reproduced successfully by using the first and second exchange completion data, and (ii) transmitting the first conversion process data to the second unit and the second conversion process data to the first unit;

an exchange completion data transmission unit for transmitting the first exchange completion data to the first unit and for transmitting the second exchange completion data to the second unit, only when the first unit has successfully received from the second unit the encrypted second content data of interest to the first unit and when the second unit has successfully received from the first unit the encrypted first content data of interest to the second unit;

an exchange completion data production unit for producing the second exchange completion data in response to the requests from the first exchange completion data production requesting unit and for producing the first exchange completion data in response to the requests from the second exchange completion data production requesting unit; and

an exchange completion data keeping unit for storing the first exchange completion data and the second exchange completion data produced by the exchange completion data production unit so that the first unit and the second unit can be respectively identified.

Claims 2-5 (Cancelled)

Claim 6 (Previously Presented) The unit-to-unit data exchange system according to claim 1, wherein:

the first conversion process data is a first encryption key;

the first exchange completion data is the first decryption key corresponding to the first encryption key;

the second exchange process data is a second encryption key; and

the second conversion completion data is the second decryption key corresponding to the second encryption key.

Claim 7 (Previously Presented) The unit-to-unit data exchange system according to claim 1, wherein:

the first processor is programmed to cause first unit to operate as a first communication result notification unit for notifying the exchange completion data keeping device of the first communication result when the first communication session is terminated;

the second processor is programmed to cause the second unit to operate as a second communication result notification unit for notifying the exchange completion data keeping

device of the second communication result when the second communication session is terminated;

the third processor is programmed to cause the exchange completion data keeping device to determine whether or not the first unit has successfully received the encrypted second content data of interest to the first unit based on the first communication result from the first communication result notification unit of the first unit, and to determine whether or not the second unit has successfully received the encrypted first content data of interest to the second unit based on the second communication result from the second communication result notification unit of the second unit.

Claim 8 (Previously Presented) The unit-to-unit data exchange system according to claim 7, wherein:

the first communication result indicates whether or not the encrypted second content data of interest to the first unit has been received successfully at the first unit;

the second communication result indicates whether or not the encrypted first content data of interest to the second unit has been received successfully at the second unit; and

the third processor is programmed to cause the exchange completion data keeping device to transmit the first exchange completion data to the first unit and to transmit the second exchange completion data to the second unit, only when the first communication result indicates that the first unit has successfully received from the second unit the encrypted second content data of interest to the first unit and when the second communication result indicates that the second unit has successfully received from the first unit the encrypted first content data of interest to the second unit.

Claim 9 (Cancelled)

Claim 10 (Previously Presented) The unit-to-unit data exchange system according to claim 1,

wherein the first processor is programmed to cause the first unit to operate as a first resend requesting unit for requesting the second unit to resend the second encrypted content data of interest to the first unit if the first unit fails to fully receive the second encrypted content data of interest to the first unit from the second unit, and

wherein the second processor is programmed to cause the second unit to operate as a second resend requesting unit for requesting the first unit to resend the first encrypted content data of interest to the second unit if the second unit fails to fully receive the first encrypted content data of interest to the second unit from the first unit.

Claim 11 (Previously Presented) A unit for exchanging content data owned by the unit with content data of interest to the unit that is owned by another unit,

wherein the unit and the other unit encrypt the content data owned thereby, respectively, when the respective content data is exchanged therebetween,

wherein the unit comprises a first memory and a first processor connected to the first memory, the first processor being programmed to cause the unit to operate as:

an exchange history storing unit for storing a history of data exchanges made with other units;

an exchange completion data production unit for producing first exchange completion data that is a decryption key, and that is necessary for reproducing encrypted first content data that is obtained by encrypting first content data owned by the unit, by changing an exchange completion data production method based on the history of data exchanges;

an exchange completion data registration unit for registering the first exchange completion data produced by the exchange completion data production unit at an exchange completion data keeping device, the exchange completion data keeping device storing the first exchange completion data;

an exchange completion data obtaining unit for obtaining, from the exchange completion data keeping device, second exchange completion data that is a decryption key, and that is necessary for reproducing encrypted second content data obtained from the other unit when a communication session with the other unit is terminated;

a data conversion unit for converting first content data of interest to the other unit that is owned by the unit, to the encrypted first content data that is of interest to the other unit and that can be reproduced successfully only by using the first exchange completion data, by changing a data conversion method based on the history of data exchanges; and

a data recovery unit for recovering second content data of the unit that can be reproduced successfully, from the encrypted second content data that is of interest to the unit and that is received from the other unit, by using the second exchange completion data obtained by the exchange completion data obtaining unit, and

wherein the exchange completion data keeping device comprises a second memory and a second processor connected to the second memory and is connected to the unit and the other unit via a communication medium, the second processor being programmed to cause the

exchange completion data keeping device to transmit (i) the first exchange completion data to the other unit, and (ii) the second exchange completion data to the unit, the transmission of the first and second exchange completion data being performed only when the unit has successfully received the encrypted second content data of interest and when the other unit has successfully received the encrypted first content data of interest.

Claim 12 (Cancelled)

Claim 13 (Cancelled)

Claim 14 (Previously Presented) The unit according to claim 11, wherein the first processor is programmed to cause the unit to operate as a resend requesting unit for requesting the other unit to resend encrypted content data of interest to the unit if the unit fails to fully receive the encrypted content data of interest to the unit.

Claim 15 (Previously Presented) A unit for exchanging content data owned by the unit with content data of interest to the unit that is owned by another unit,

wherein the unit and the other unit encrypt the content data owned thereby, respectively, when the respective content data is exchanged therebetween,

wherein the unit comprises a first memory and a first processor connected to the first memory, the first processor being programmed to cause the unit to operate as:

an exchange completion data production requesting unit for requesting an exchange completion data keeping device to produce first exchange completion data that is a

decryption key, and that is necessary for reproducing encrypted first content data obtained by encrypting first content data owned by the unit, the exchange completion data keeping device storing the first exchange completion data;

an exchange completion data obtaining unit for obtaining, from the exchange completion data keeping device, second exchange completion data that is a decryption key, and that is necessary for reproducing encrypted second content data obtained from the other unit when a communication session with the other unit is terminated;

an exchange history storing unit for storing a history of data exchanges made with other units;

a conversion method notification unit for notifying the exchange completion data keeping device of a conversion method used for converting the first content data owned by the unit based on the stored history of data exchanges;

a conversion process data reception unit for receiving conversion process data, the conversion process data being used for converting the first content data that is of interest to the other unit and that is owned by the unit so that the encrypted first content data that is of interest to the other unit to be transmitted to the other unit can be reproduced successfully by using the first exchange completion data requested from the exchange completion data keeping device;

a data conversion unit for converting the first content data of interest to the other unit that is owned by the unit by using the conversion process data received by the conversion process data reception unit; and

a data recovery unit for recovering the second content data that is of interest to the unit and that can be reproduced successfully, from the encrypted second content data that is

of interest to the unit and that is obtained from the other unit, by using the second exchange completion data obtained by the exchange completion data obtaining unit,

wherein the exchange completion data keeping device comprises a second memory and a second processor connected to the second memory, and is connected to the unit and the other unit via a communication medium, the second processor being programmed to cause the exchange completion data keeping device to:

produce the conversion process data based on the conversion method notified by the unit;

produce the first exchange completion data in response to the request to produce the first exchange completion data by the unit, and the second exchange completion data in response to a request by the other unit; and

transmit (i) the first exchange completion data to the other unit, and (ii) the second exchange completion data to the unit, the transmission of the first and second exchange completion being performed only when the unit has successfully received the encrypted second content data of interest and when the other unit has successfully received the encrypted first content data of interest, and

wherein the first processor is programmed to cause the unit, as the data conversion unit, to convert the first content data of interest to the other unit that is owned by the unit by using the conversion process data and using the conversion method notified to the exchange completion data keeping device.

Claim 16 (Cancelled)

Claim 17 (Cancelled)

Claim 18 (Previously Presented) The unit according to claim 15, wherein the first processor is programmed to cause the unit to operate as a resend requesting unit for requesting the other unit to resend encrypted content data of interest to the unit if the unit fails to fully receive the encrypted content data of interest to unit.

Claim 19 (Previously Presented) An exchange completion data keeping device used in a system for exchanging content data between a first unit and a second unit connected to each other via a communication medium,

wherein the first unit includes a first memory and a first processor connected to the first memory, the first processor being programmed to cause the first unit to store first content data of interest to the second unit and to encrypt the first content data of interest to the second unit,

wherein the second unit includes a second memory and a second processor connected to the second memory, the second processor being programmed to cause the second unit to store second content data of interest to the first unit and to encrypt the second content data of interest to the first unit,

wherein the exchange completion data keeping device is connected to the first unit and the second unit via the communication medium,

wherein the exchange completion data keeping device comprises:

a third memory; and

a third processor connected to the third memory, and

wherein the third processor is programmed to cause the exchange completion data keeping device to operate as:

an exchange completion data production unit for producing (i) first exchange completion data, in response to requests from the second unit, that is a first decryption key and that is necessary for reproducing encrypted second content data of interest to the first unit that is obtained by the first unit from the second unit and (ii) second exchange completion data, in response to requests from the first unit, that is a second decryption key and that is necessary for reproducing encrypted first content data of interest to the second unit that is obtained by the second unit from the first unit;

an exchange completion data keeping unit for storing the first exchange completion data and the second exchange completion data;

a conversion process data production/transmission unit for (i) producing first and second conversion process data respectively used for converting the second and first content data to the encrypted second and first content data that can be reproduced successfully by using the first and second exchange completion data, and (ii) transmitting the first conversion process data to the second unit and the second conversion process data to the first unit;

a data reception unit for receiving a first communication result from the first unit when a first communication session between the first unit and the second unit is terminated, and receives a second communication result from the second unit when a second communication session between the first unit and the second unit is terminated;

a determination unit for determining whether the first unit has successfully received from the second unit the encrypted second content data of interest to the first unit based on the first communication result, and determines whether the second unit has successfully

received from the first unit the encrypted first content data of interest to the second unit based on the second communication result; and

an exchange completion data transmission unit for transmitting (i) the first exchange completion data to the first unit and (ii) the second exchange completion data to the second unit, only when the first unit has successfully received from the second unit the encrypted second content data of interest to the first unit and when the second unit has successfully received from the first unit the encrypted first content data of interest to the second unit.

Claim 20 (Previously Presented) The exchange completion data keeping device according to claim 19, wherein the third processor is programmed to cause the exchange completion data keeping device, as the exchange completion data keeping unit, to keep the first exchange completion data and the second exchange completion data produced by the exchange completion data production unit so that the first unit and the second unit can be identified.

Claim 21 (Cancelled)

Claim 22 (Cancelled)

Claim 23 (Previously Presented) The exchange completion data keeping device according to claim 19, wherein:

the first communication result indicates whether or not the encrypted second content data of interest to the first unit has been received successfully at the first unit;

the second communication result indicates whether or not the encrypted first content data of interest to the second unit has been received successfully at the second unit; and

the third processor is programmed to cause the exchange completion data keeping device, as the exchange completion data transmission unit, to transmit the first exchange completion data to the first unit and the second exchange completion data to the second unit, when the first communication result indicates that the encrypted second content data of interest to the first unit has been received successfully at the first unit and when second communication result indicates that the encrypted first content data of interest to the second unit has been received successfully at the second unit.

Claim 24 (Previously Presented) The exchange completion data keeping device according to claim 19, wherein the third processor is programmed to cause the exchange completion data keeping device to operate as an exchange completion data deletion unit for deleting the first exchange completion data and the second exchange completion data stored in the exchange completion data keeping device if a predetermined condition is satisfied.

Claim 25 (Previously Presented) The exchange completion data keeping device according to claim 24, wherein the predetermined condition indicates that the exchange completion data deletion unit deletes the first exchange completion data transmitted to the first unit from the exchange completion data transmission unit and the second exchange completion data transmitted to the second unit from the exchange completion data transmission unit when the first unit has successfully received the first exchange completion data and when the second unit has successfully received the second exchange completion data.

Claim 26 (Previously Presented) The exchange completion data keeping device according to claim 24, wherein the predetermined condition is a condition such that the exchange completion data deletion unit deletes the first exchange completion data registered by the first unit and the second exchange completion data registered by the second unit, if the exchange completion data deletion unit is notified from either the first unit or the second unit that the encrypted content data of interest has not been received successfully.

Claim 27 (Cancelled)

Claim 28 (Currently Amended) A non-transitory computer-readable recording medium having a program recorded thereon, the program for instructing a computer device to exchange first content data of interest that is owned by the computer device with second content data of interest to the computer device that is owned by another computer device, the computer device encrypting the first content data of interest owned by the computer device when the first content data of interest is exchanged between the computer device and the other computer device, the other computer device encrypting the second content data of interest owned by the other computer device when the second content data of interest is exchanged between the computer device and the other computer device, and the program causing the computer device to execute a method comprising:

instructing the computer device to request an exchange completion data keeping device for keeping exchange completion data to produce first exchange completion data that is a decryption key, and that is necessary for reproducing encrypted first content data of interest to

the other computer device, the encrypted first content data being obtained by encrypting the first content data of interest that is owned by the computer device;

instructing the computer device to obtain, from the exchange completion data keeping device, second exchange completion data that is a decryption key, and that is necessary for reproducing encrypted second content data of interest to the computer device, the encrypted second content data being obtained from the other computer device when a communication session with the other computer device is terminated;

requesting the exchange completion data keeping device to produce the second exchange completion data;

receiving, from the exchange completion data keeping device, a conversion process data used for converting the first content data to the encrypted first content data that can be reproduced successfully only by using the second exchange completion data;

converting the first content data owned by the computer device, by using the conversion process data, to encrypted first content data that can be reproduced successfully only by using the second exchange completion data;

receiving the encrypted second content data from the other computer device; and

recovering the second content data that can be reproduced successfully, from the encrypted second content data by using the first exchange completion data,

wherein the exchange completion data keeping device transmits (i) the first exchange completion data to the other computer device, and (ii) the second exchange completion data to the computer device, the transmitting of the first and second exchange completion data being performed only when the computer device has successfully received from the other computer device the encrypted second content data of interest to the computer device and when the other

computer device has successfully received from the computer device the encrypted first content data of interest to the other computer device.

Claim 29 (Currently Amended) A non-transitory computer-readable recording medium having a program recorded thereon, the program for instructing an exchange completion keeping device, which is used in a system for exchanging content data of interest between a first computer device and a second computer device connected to each other via a communication medium, and the program causing the exchange completion keeping device to execute a method comprising:

producing (i) first exchange completion data, in response to requests from the second computer device, that is a first decryption key and that is necessary for reproducing encrypted second content data that is of interest to the first computer device and that is obtained by the first computer device from the second computer device and (ii) second exchange completion data, in response to requests from the first computer device, that is a second decryption key and that is necessary for reproducing encrypted first content data that is of interest to the second computer device and that is obtained by the second computer device from the first computer device;

storing the first exchange completion data and the second exchange completion data;

producing first and second conversion process data respectively used for converting the second and first content data to the encrypted second and first content data that can be reproduced successfully by using the first and second exchange completion data;

transmitting the first conversion process data to the second computer device and the second conversion process data to the first computer device; and

transmitting the first exchange completion data to the first computer device and transmitting the second exchange completion data to the second computer device, the transmitting of the first and second exchange completion data being performed only when the first computer device has successfully received from the second computer device the encrypted second content data of interest to the first computer device and when the second computer device has successfully received from the first computer device the encrypted first content data of interest to the second computer device.